

MULTI-PLAYER ELECTRONIC ENTERTAINMENT SYSTEM

Field of the Invention.

The present invention, generally, relates to entertainment systems and, more particularly, to multiplayer electronic systems that have a plurality of arcade video game devices surrounding a flight simulator type device.

BACKGROUND OF THE INVENTION

Edwin Link developed the flight simulator around 1929, with the notion that it would be used as a training device for learning to fly an airplane. The original simulator included aircraft type controls, simulated instruments, and a motion base to simulate some of the movements of an actual airplane.

Flight simulator technology has advanced dramatically over the years for training uses. Among these advancements are the addition of visual simulation with electronically produced imagery available by the 1970's.

It was not until around 1990, however, that entertainment use of a simulator started to become practical. Before then, the cost of the technology precluded such use for entertainment. However, today full-motion simulators are available from corporations such as Disney, MaxFlight and others, but they remain both expensive and scarce.

5 Video arcade games present a different type of electronic entertainment experience. While a flight simulator type typically has a closed cockpit with seats on a powered motion base, a video arcade game provides only a place for a player to stand in front of a CRT screen. Atari, Sega and others produce video game systems.

10 While arcade video game systems remain a mainstay in the electronic entertainment industry, there is an indication that the public interest in arcade type systems has peaked and is beginning to wane. This may be in part due to the increased performance of home PC and video game systems. As home systems improve, arcade video game systems are expected to have more difficulty attracting player patronage.

15 From the viewpoint of the arcade operator, video game systems offer the advantage of producing higher revenues per square foot of arcade floor space. Also, the simulator entertainment systems, by comparison, offer entertainment experience unavailable in the home, but with potentially lower revenue per square foot.

OBJECTS AND SUMMARY OF THE INVENTION

20 It is an object of the present invention to provide a new type of electronic entertainment system for use outside the home.

A further object of the invention is to provide an electronic entertainment system that includes advanced technology aspects of simulation technology permitting improved revenue per square foot.

5 Briefly, the present invention is a multiplayer electronic entertainment system having a central simulator style device surrounded by a plurality of video game style devices. The simulator style device has a player cab mounted on a hydraulic motion base. Each video game style device is fixed and has a display. All of the devices are interconnected via a switch so
10 each player is visible to the others in the electronic imagery created by the game style devices.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a block diagram of the entertainment system to illustrate the present invention.

15 **FIG. 2** illustrates a simulator style device component of the system of the present invention.

FIG. 3 illustrates one of the video game style device component of the system of the invention.

20 **FIG. 4** illustrates one physical, arcade type layout of a system arranged according to the principles of the invention.

DETAILED DESCRIPTION OF THE INVENTION

Referring first to FIG. 1, the present invention includes one simulator style device 18, a network switch 16 and ten nominal video game style devices 10a-j. The simulator style device 18 and the video game style devices 10a-j are interconnected by a network interconnection using 100baseT Ethernet from each device through the network switch 16.

In a preferred arrangement of the entertainment system of the invention, there are two additional computers 12 and 14 connected to the central network switch 16. A game computer 12 is used to start and to stop the game, to keep score, and to keep track of objects shared among the players, such as a ball in a sports game. A tracking computer 14 is used to keep track of player identity and of player accounts, player experience with the game and various statistics, such as the player's scoring.

Referring next to FIG. 2 of the drawings, a simulator style device 18 has a motion base 20 with two or more degrees of freedom of motion, an enclosed cab 22 with at least one seat, controls for interactive operation of the device by a player and a computer for executing the interactive experience.

The *simulator* style device 18 also has one or more displays inside the cab for use by the players. At least one of these displays shows an "out-the-window" image created with a graphics accelerator for use by a player in steering. The displays could be
5 a conventional CRT or a projection type, typically a special wide-area-collimating (WAC) window is used to impart additional realism.

The *simulator* style device 18 is so-named by comparison to systems typically used for flight training. However, in an entertainment system, the vehicle simulated need not be an
10 aircraft. It can be a wheeled vehicle, or a tank, or an imaginary vehicle, such as a robot or a spaceship.

In FIG. 3, a *video game* style device 10 provides one or more direct view CRT or panel displays and game controls in an upright console. In the preferred embodiment of the invention, there is a
15 32 inch monitor as a large screen display 36 showing out-the-window imagery and a 15 inch touchscreen flat panel display 34 showing a moving map and menu selection items.

A player stands in front of the console to play or a minimal seat may be provided to support a player in a standing position.
20 A joystick 30 and a throttle 32 are used to control the game.

In a networked game, players can see each other in the out-the-windows displays as they interact during the game by having

each player output his position and identity to a network that interconnects the computers. Techniques for exchanging packets of data on a network are well known in the art, and therefore, game programs are not a part of the present invention.

5 A networked game is played concurrently by the players in the *simulator* style device 18 and those on the arcade *video game* style devices 10. The *simulator* players receive an experience that is enhanced by better visual and sound effects and by the addition of motion cues. Addition of rudder pedal controls and a second player in the *simulator* style device 18 provide further enhancement of the performance of a player or players in the *simulator* style device 18.

10 Referring next to FIG. 4 of the drawings, the physical arrangement of the *simulator* style device and *video game* style devices 10 is important. A circular arrangement is preferred but not required. The *simulator* style device 18 is placed in the center and may be elevated to provide onlookers with a good view of the device when it is in motion.

15 The larger and more expensive *simulator* style device 18 should be prominently featured to attract attention to the game system. The *video game* style devices 10 should be placed so that their large screen displays 36 are visible to onlookers to further encourage game play.

A "fence" 38 surrounds the *simulator* style device 18 for safety, and left stairs 40 and right stairs 42 provide access to the two sides of a *simulator* cab 22 for the two players. The floor space of the entire system is minimized for economy.

5 The invention has been described in substantial detail. However, it is understood that the invention is not limited by the description, but rather, the invention is intended to include any modification and any arrangement that is covered by the spirit and scope of the appended claims.

10 What is claimed is: